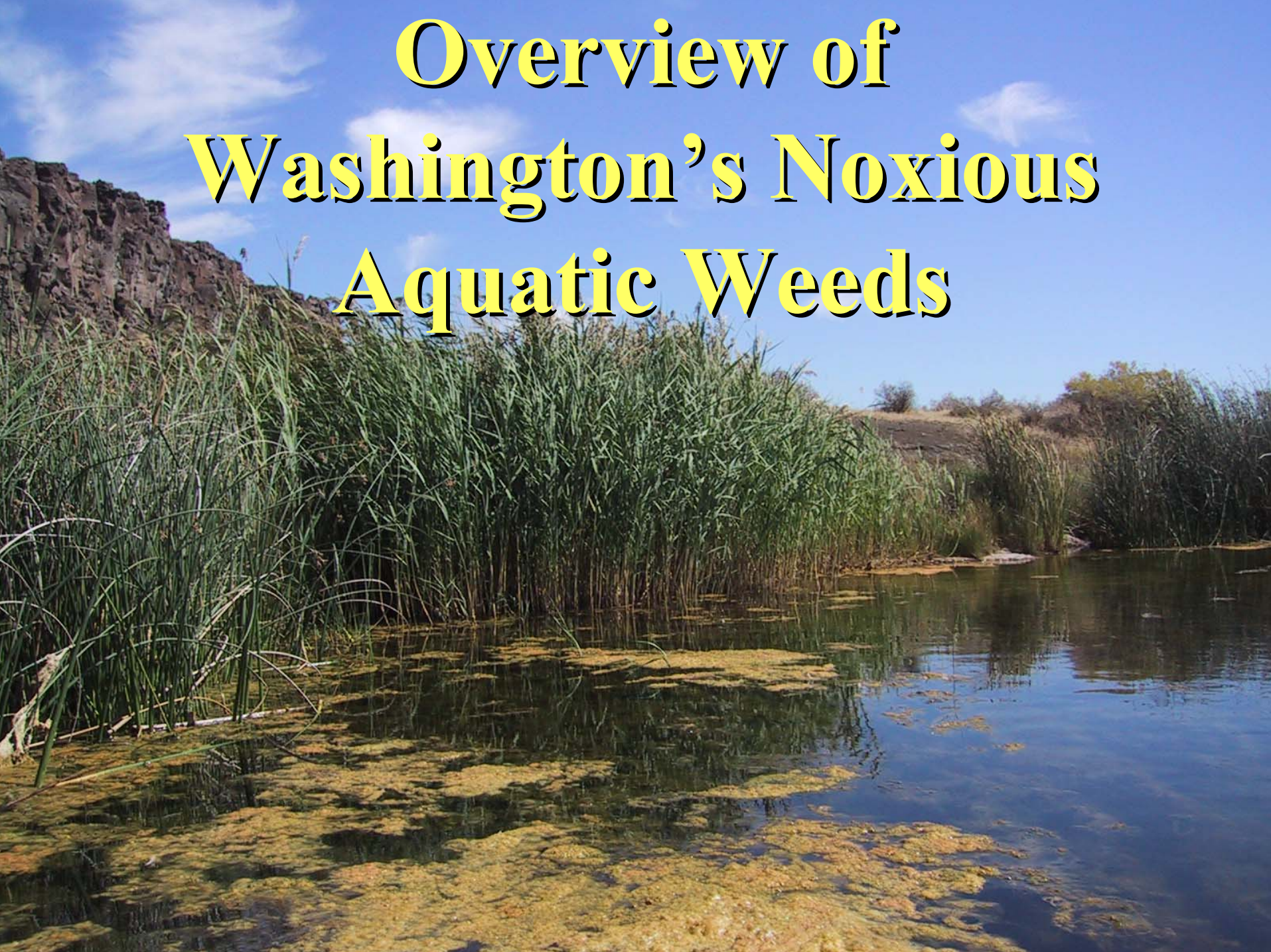
Overview of Washington's Noxious Aquatic Weeds



What is a NOXIOUS WEED?

- **Not native to Washington State**
- **Able to invade natural areas and dominate plant communities in climatic zones similar to Washington**
- **Pose a threat to Washington's economy and/or environment**
- **Listed by the State Noxious Weed Control Board**

Class A Noxious Weeds

- Limited distribution in the State
- High likelihood of becoming a major problem
- Eradication is required by law

Dense-flowered cordgrass *(Spartina densiflora)*

- **Perennial Grass**
- **Flowers**
  - **Blooms from April through July**
  - **6-30 cm long**
  - **Compact colorless flowers**
- **Leaf Blades**
  - **Narrow, Long and inrolled**
  - **Grayish color**

Dense-flowered cordgrass
(Spartina densiflora)

- **Habitat**
  - **Spartina is an invasive cordgrass that is taking over tideflats**

- **Impacts**
  - **altering natural fish and shellfish habitats and excluding native vegetation.**

Hydrilla
(*Hydrilla verticillata*)

Hydrilla
(*Hydrilla verticillata)*

- **Submersed plant**
  - **grow to the surface forms dense mats**
- **Flowers**
  - **tiny white on long stalks**
- **Stems**
  - **slender, branched and up to 25 ft long**
- **Leaves**
  - **strap-like and pointed grow in whorls of 4-8 around the stem.**
  - **margins are distinctly saw-toothed**

Hydrilla

- **Habitat**
  - **found in all types of water bodies.**
  - **Warm freshwater ponds and slow-moving streams. Can grow in cool and brackish water.**
  - **The plant is normally firmly rooted in the bottom mud but occasionally breaks free and forms free-floating mats.**

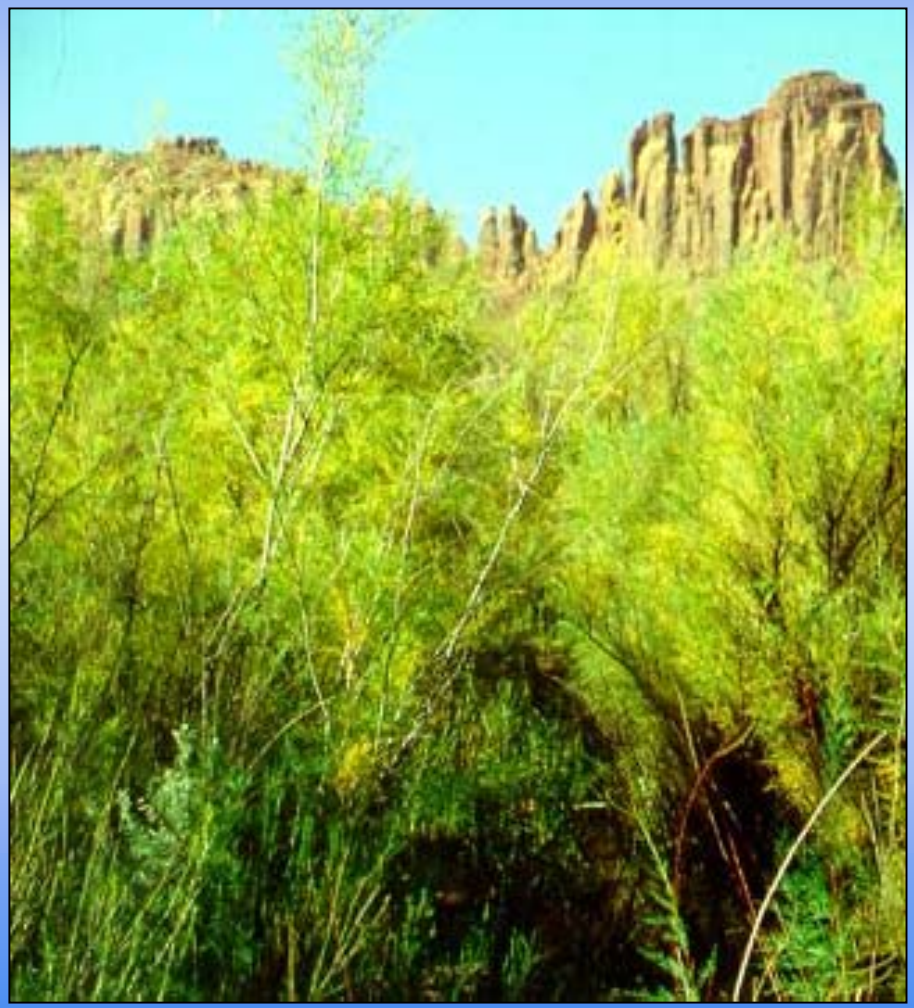
Hydrilla

- **Impacts**
  - **Greatly reduces water flow**
    - **flooding damage**
    - **Clogs irrigation intake**
    - **Disrupts flow patterns for adequate cooling of water.**
    - **The economic impacts of these water uses to real estate values, tourism, and user groups can be staggering.**

Class B Noxious Weeds

- Limited distribution in parts of the state
- Control required in designated regions
- Containment is the primary goal in other areas, control a local option

Saltcedar
(Tamarix ramosissima)



Saltcedar
(*Tamarix ramosissima*)

- **Spreading shrubs or Small trees**
- **Flowers**
  - **Pale pink to white**
- **Leaves**
  - **Alternate, Scale-like**
  - **Slender branches**

Saltcedar (*Tamarix ramosissima*)

- **Habitat**
  - **streams, bottomlands, banks & drainage washes.**
  - **Can grow on highly saline soils & can tolerate alkali conditions.**
- **Impacts**
  - **disrupts native plant & wildlife communities**
  - **monopolizes moisture, and increases the frequency, intensity and effects of fires and floods**

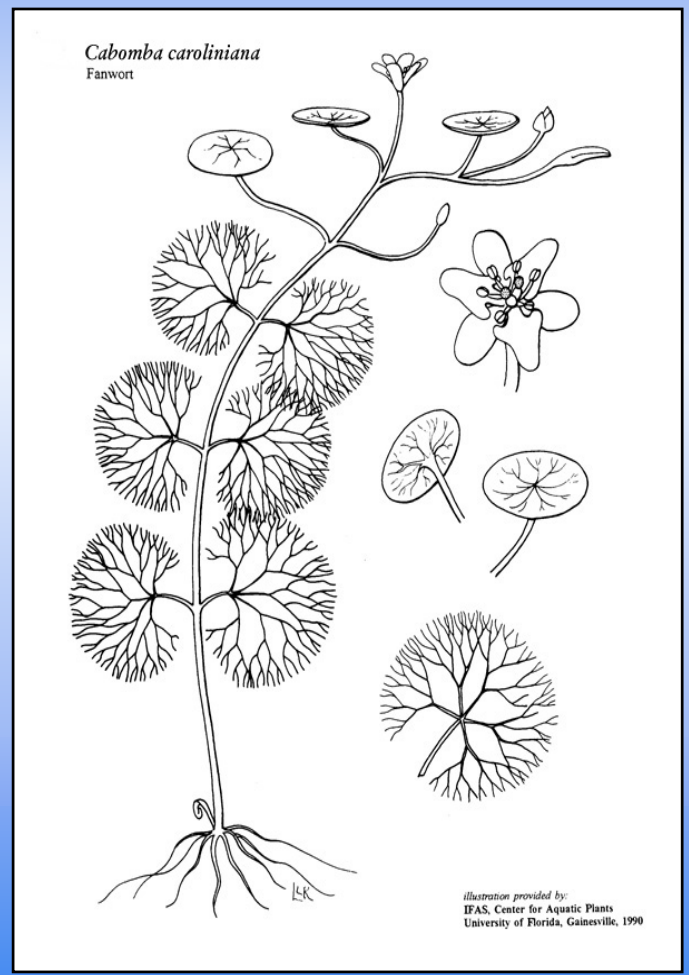
Fanwort
(Cabomba caroliniana)

Fanwort
(*Cabomba caroliniana)*

- **Submerged perennial**
- **Flowers**
  - **small white, 6 petals**
- **Leaves**
  - **narrow**
    - **resemble a fan arranged on a narrow stem.**
  - **Small lily-like leaves that float on the surface below the flowers**

Fanwort
(*Cabomba caroliniana)*

- **Habitat**
  - **roots in the mud of stagnant slow flowing waters**
- **Impacts**
  - **persistent and competitive**
  - **Form dense stands,**
    - **crowding out previously well-established plants**



Brazilian elodea
(Egeria densa)

Brazilian elodea

- Submersed,aquatic perennial
  - can grow to depths of 20 ft
- Flower
  - White, three-petaled
  - produced on threadlike stalks
- Leaves
  - whorls of 4 around the stem
  - oblong to linear in shape
  - less than one inch in length, finely toothed.

Brazilian elodea

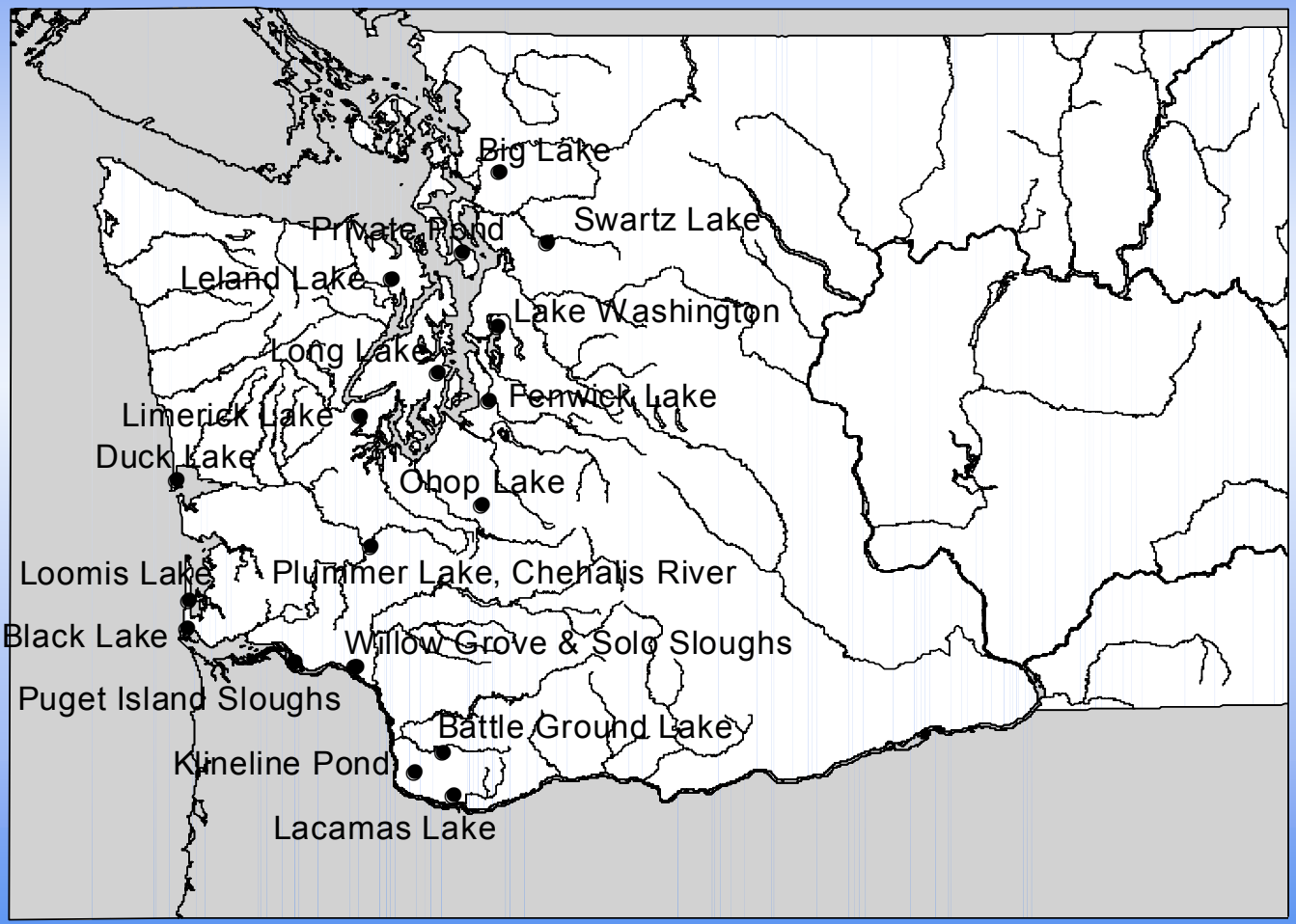
- **Habitat:**
  - slow-moving, shallow waters
  - lakes& rivers
- **Impacts**
  - forms dense monotypic mats
  - out compete native species
  - interfere with recreational uses

Elodea Vs. Hydrilla

- The major differences
  - elodea has large showy flowers while hydrilla has only small white flowers.
  - elodea is smooth to the touch if you pull a stem through your fingers, and it has serrulate leaf margins where hydrilla is rough and has sharply toothed leaf margins.

Elodea Vs. Hydrilla

Known Locations of *Egeria densa*, 2002



Water primrose
(Ludwigia hexapetala)

Water primrose (*Ludwigia hexapetala*)

- Perennial herb
- Flowers
  - Bright yellow
  - Normally with 5 petals.
  - blooms summer
- Leaves
  - Alternately-arranged, slightly hairy, willow-like.

P

Water primrose (*Ludwigia hexapetala*)

- **Habitat**
  - **Along shorelines and out into the water.**
  - **Margins of lakes, ponds, ditches, and streams.**
- **Impact**
  - **Blankets the water surface reducing light levels, temperature and oxygen**
  - **Effects on communities of native plants and animals**
  - **Can also interfere with animal access for drinking water, human access for swimming and boating, reduce water quality and block pumps.**

Lysimachia vulgaris

garden loosestrife

Garden loosestrife (*Lysimachia vulgaris*)

- Perennial
- Flowers
  - Yellow, primrose-like
  - Clustered near top of the plant
- Leaves
  - Lance-shaped
  - Opposite or whorled
  - Dotted with black or orange glands

Garden loosestrife

P

- **Habitat**
  - moist areas, such as wet woods, lake shores, and river banks.
- **Impact**
  - ability to invade and establish itself in wetlands
    - threatening this natural resource

Purple loosestrife
(Lythrum salicaria)

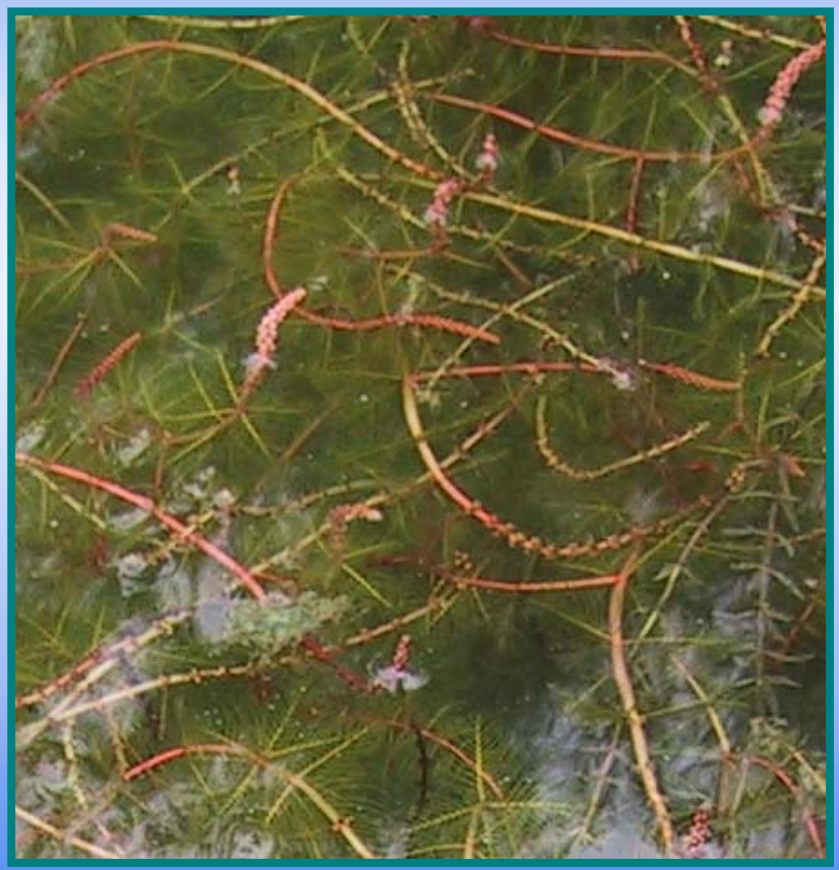
Purple loosestrife *(Lythrum salicaria)*

- Perennial herb
- Stem
  - square, woody
- Flowers
  - Purple, 5-7 petals
- Leaves
  - lance-shaped
  - opposite or whorled

Purple loosestrife *(Lythrum salicaria)*

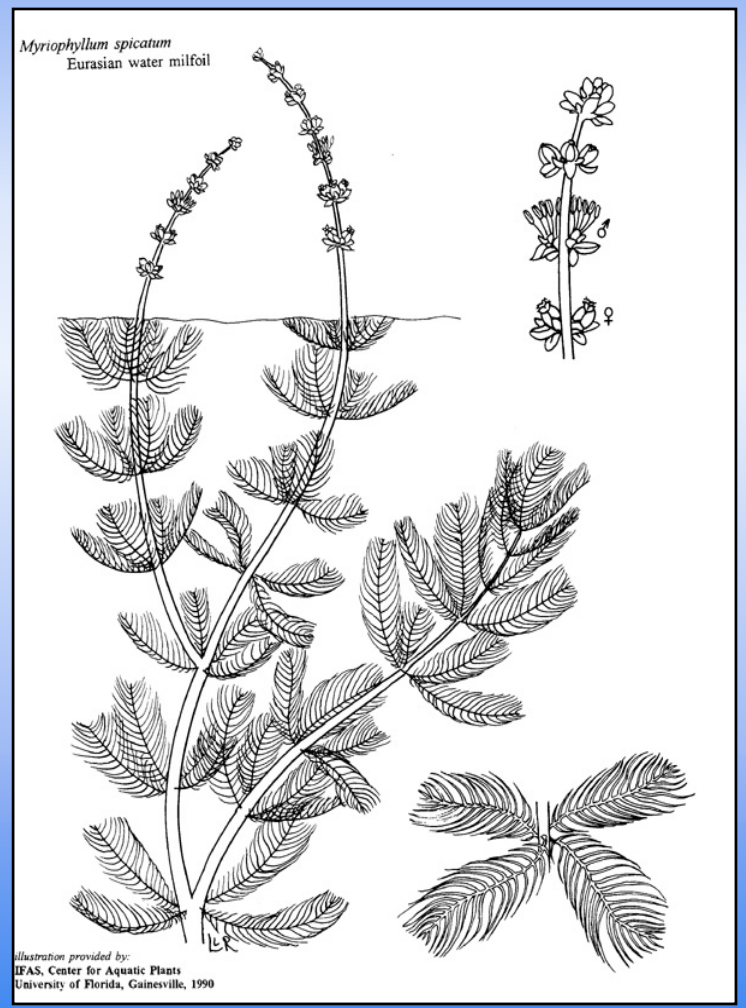
- **Habitat**
  - **wetlands**
- **Impacts**
  - **forms dense, homogeneous stands that restrict native wetland plant species**
  - **outcompetes and replaces native flowering plants**
  - **Degrading nutrition for wildlife**

Eurasian watermilfoil (*Myriophyllum spicatum*)



Eurasian watermilfoil (*Myriophyllum spicatum*)

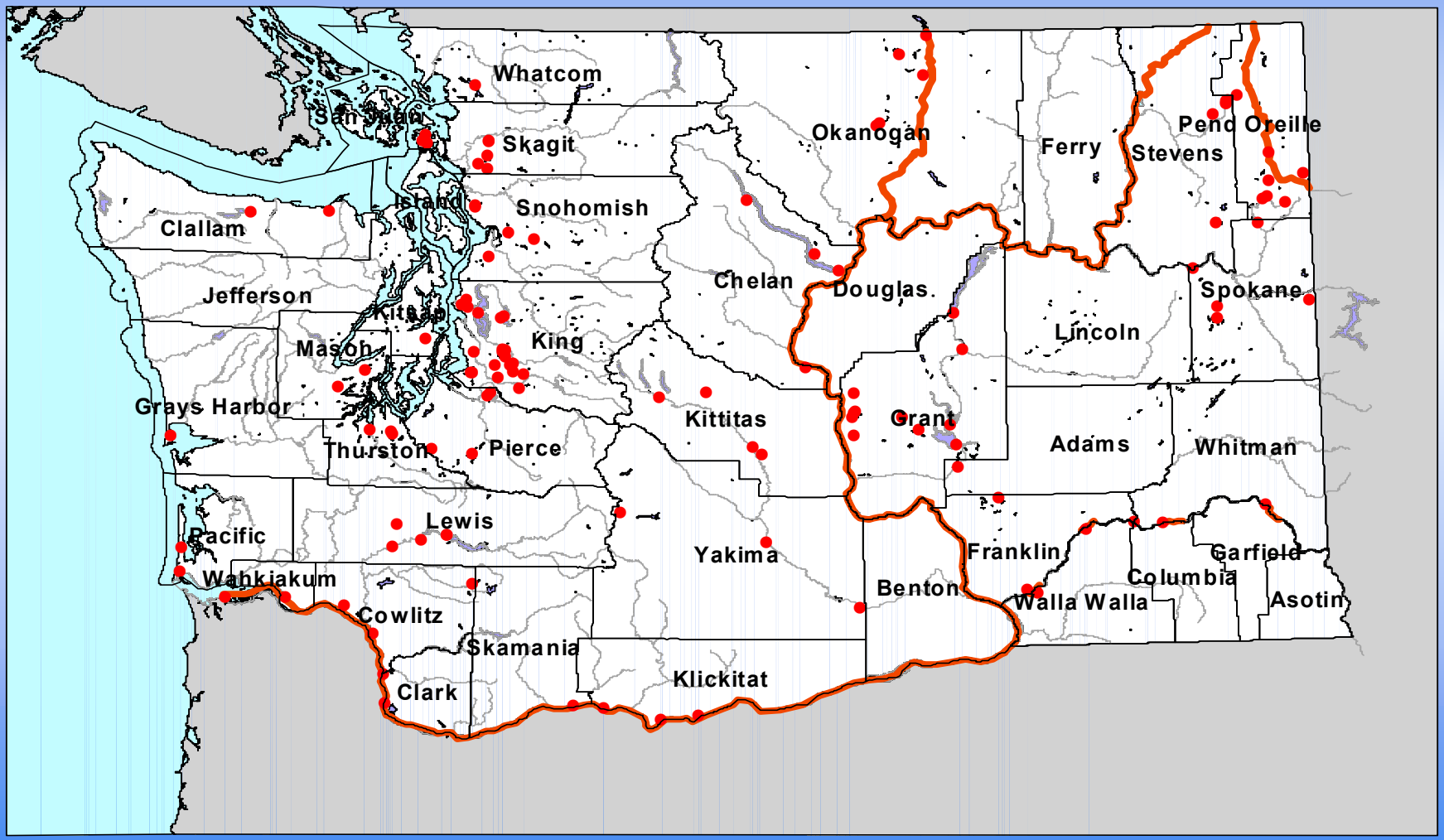
- Emergent herbaceous
- Stems
  - long branching
- Flowers
  - small reddish
  - above the water on a spike
- Leaves
  - feather-like whorled leaves



Eurasian watermilfoil

- **Habitat**
  - fresh to brackish water
  - disturbed areas where native plants cannot adapt
- **Impacts**
  - forms large, floating mats on the surface water bodies
  - preventing light penetration for native aquatic plants and slowing water flow

Known locations of *Myriophyllum spicatum*, 2001



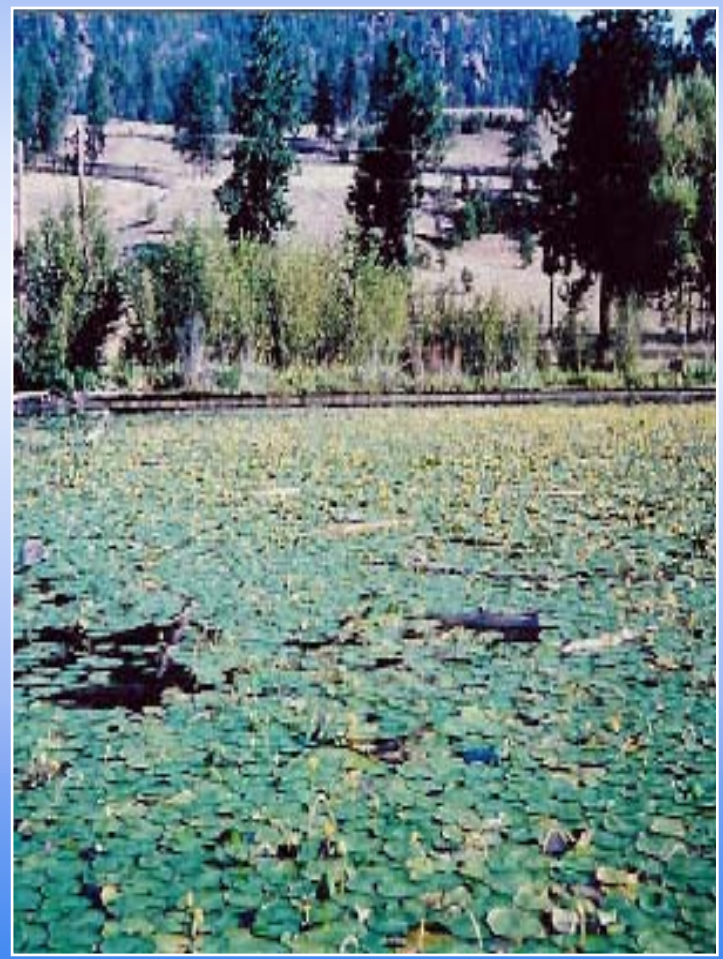
Yellow floating heart
(Nymphoides peltata)

Yellow floating heart (*Nymphoides peltata*)

- **Perennial**
- **Flower**
  - **bright yellow, 5-petaled**
  - **Edges distinctively fringed**
- **Leaves**
  - **Heart-shaped to circular**
  - **Margins are slightly wavy**
  - **Often purplish underneath.**

Yellow floating heart

- **Habitat**
  - **slow moving rivers lakes, reservoirs, ponds and swamps**
- **Impacts:**
  - **Dense mats**
  - **impair water flow**
  - **impacts recreational uses**
  - **fish and wildlife habitat**

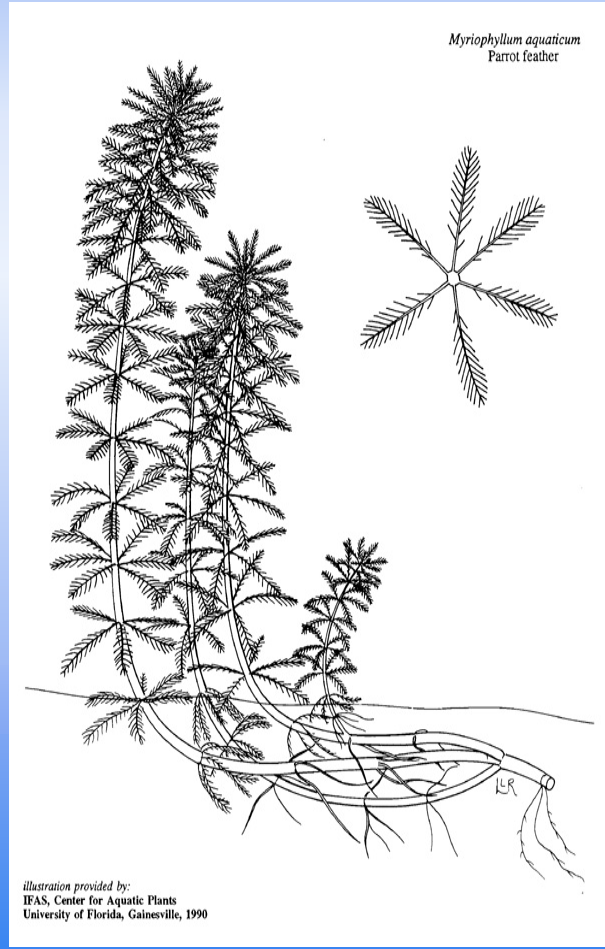


Parrotfeather

Myriophyllum aquaticum

Parrotfeather (Myriophyllum aquaticum)

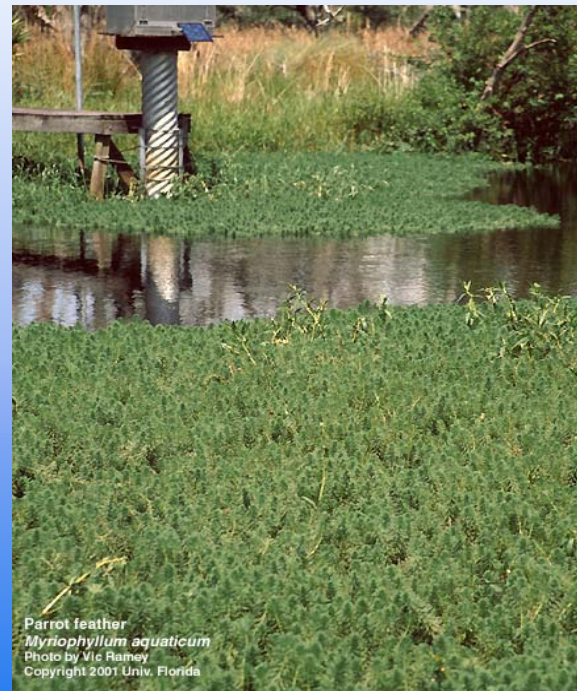
- Rhizomenous Perennial
- Flowers:
  - Inconspicuous
- Leaves:
  - Submersed and emergent
  - Bright green emergent Leaves
    - few inches to one foot above the waters surface



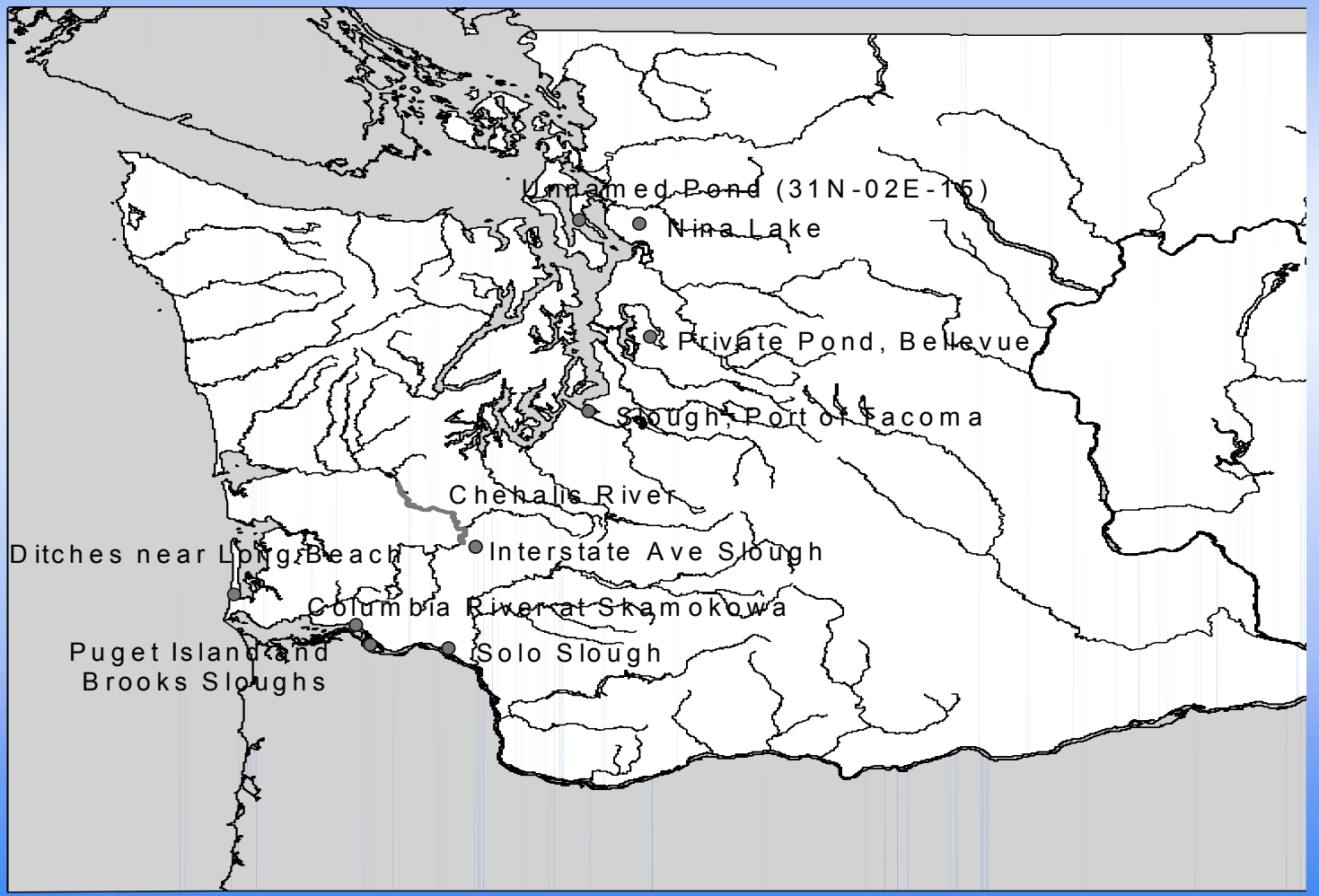
Parrotfeather

P

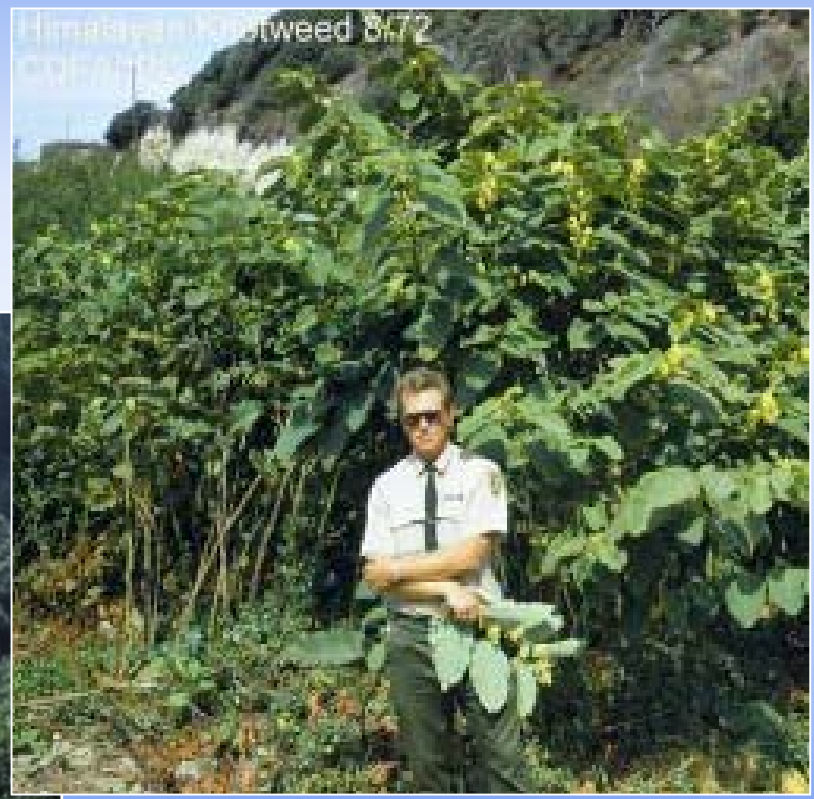
- **Habitat:**
  - **freshwater lakes, ponds, streams, and canals**
  - **slowly moving or still water**
- **Impacts:**
  - **Alter the physical and chemical characteristics of lakes & streams.**
- **Close relative of Eurasian watermilfoil**



Known Locations of *Myriophyllum aquaticum*, 2002



Knotweed Species:



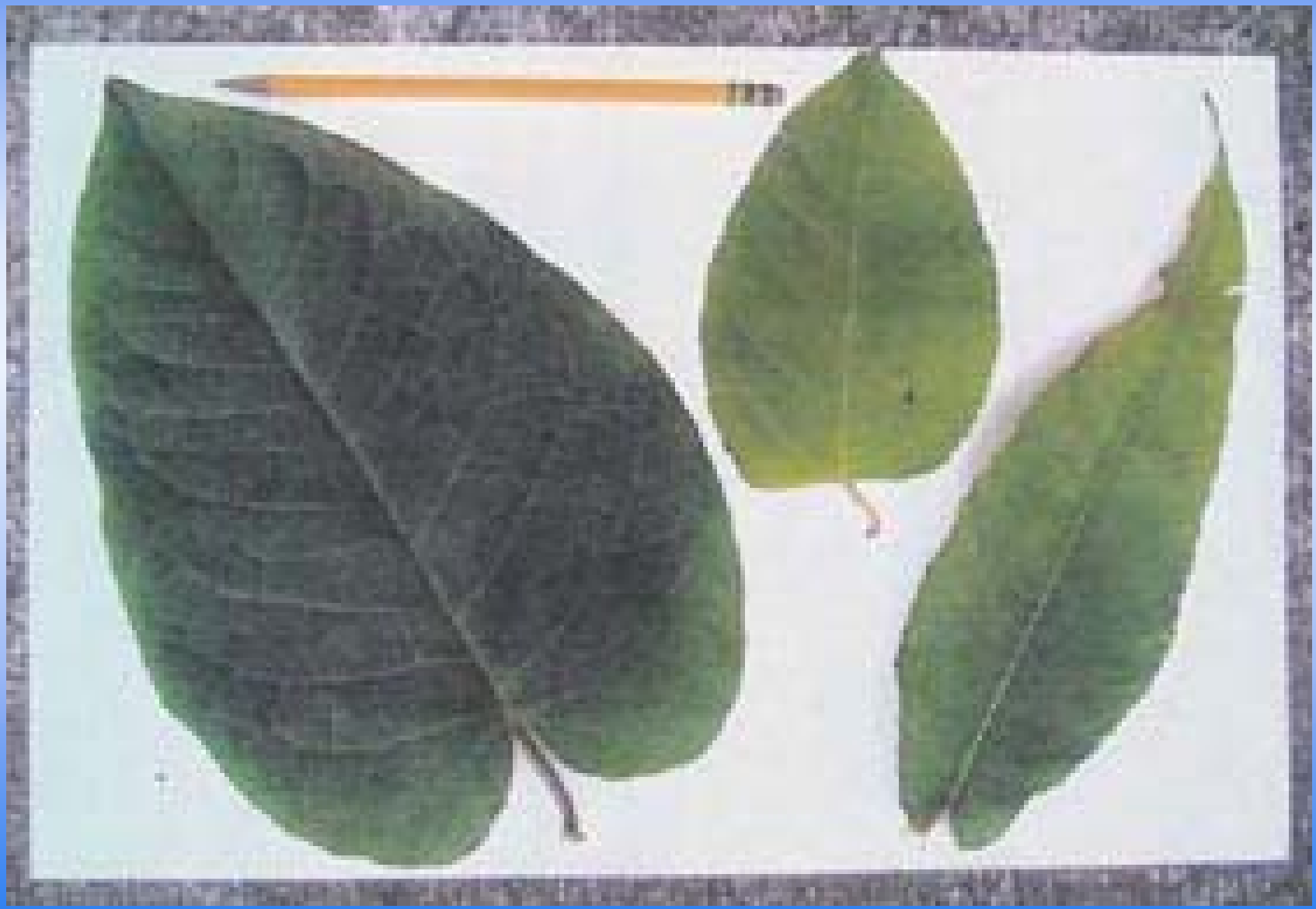
Himalayan, Giant & Japanese knotweeds

- Perennial
  - Creeping rhizomes
- Stems
  - Hollow
  - 7- 10 ft tall
  - Weakly woody
  - Swollen at nodes
  - Usually reddish-brown at maturity

Knotweeds

- Flowers
  - Panicles
  - White to pinkish
- Leaves
  - Alternate
  - Lanceolate
  - Short hairs

Knotweeds

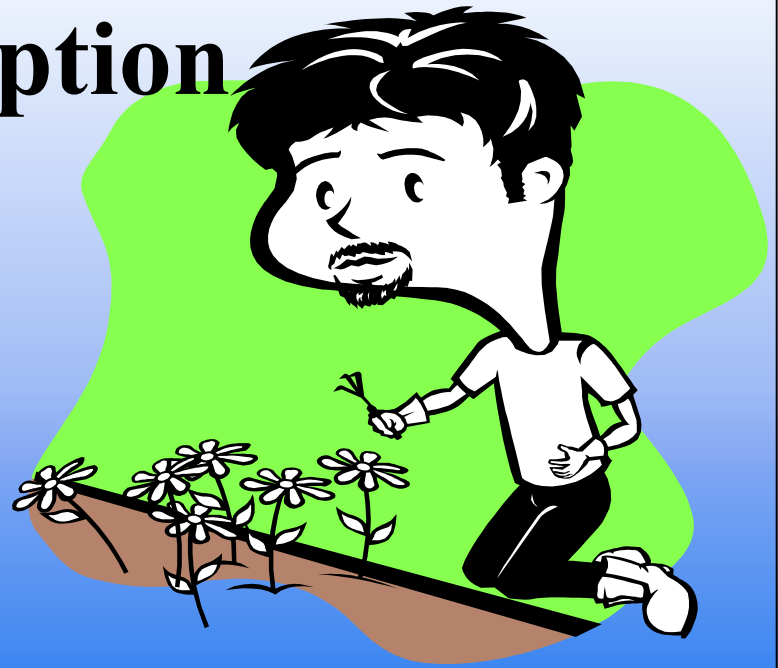


Knotweeds

- **Habitat**
  - along streams & rivers
  - ditches & ravines
  - moist soils in cool temperate
- **Impacts**
  - invades riparian areas
  - create dense colonies that exclude native vegetation
- **New plants can sprout from fragments as small as 1 inch**

Class C Noxious Weeds

- **Most are widespread in Washington**
- **Control is a local option**



Yellowflag Iris

Iris pseudacorus

Yellow Flag iris (*Iris pseudacorus*)

- **Rhizomatous Perennial**
- **Flowers:**
  - **Yellow with small black lines**
  - **Stems can carry up to 12 flowers**
- **Leaves:**
  - **Long and stiff**
  - **Sword shaped**
  - **Sharp edges**

Yellow Flag iris

- **Habitat:**
  - **Damp edges of ponds lakes and rivers**
- **Impacts:**
  - **Crowds out native species**

Fragrant waterlily
Nymphaea odorata

Fragrant Waterlily (*Nymphaea odorata)*

- **Aquatic Rhizomatous Perennial**
- **Flowers:**
  - **large white or occasionally pink**
  - **float on the water's surface**

Fragrant Waterlily

- **Leaves:**
  - **Floating**
  - **Spherical but with a basal cleft**
  - **Up to 2 feet in diameter**
  - **Green and smooth on the upper surface**
  - **Usually purple and finely hairy on the lower surface**
  - **Flat, smooth stalks**

Fragrant Waterlily

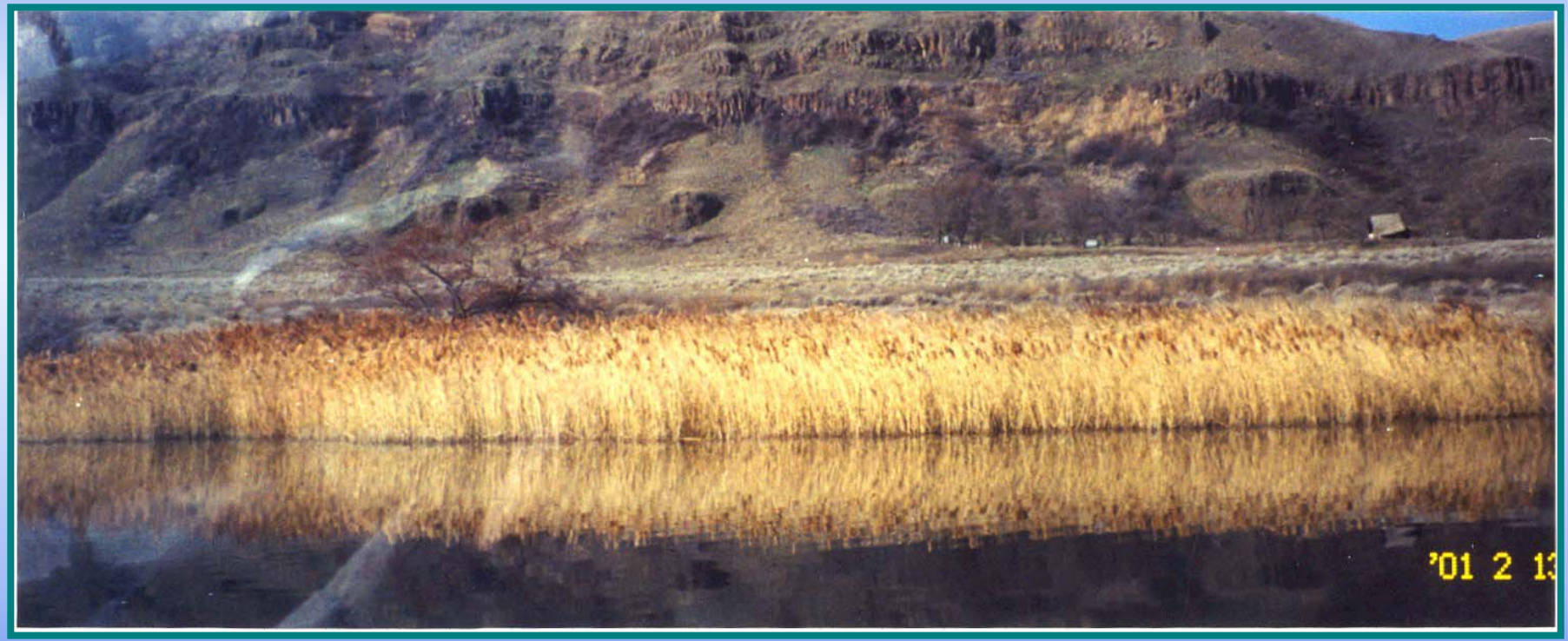
- **Habitat:**
  - **Still, fairly shallow water**
- **Impacts:**
  - **Grow in dense patches**
  - **Excluding native species**
  - **Restrict lake-front access and eliminate swimming opportunities**

Phalaris arundinacea
reed canarygrass

reed canarygrass
Phalaris arundinacea

- **Perennial grass**
- **Leaves**
  - **flat, and usually between 10-15 mm. Wide**
- **Impacts**
  - **aggressive species that forms persistent, monotypic stands**
- **Habitat**
  - **disturbed wetlands including inland fresh meadows, shrub swamps, and wooded swamps**

Phragmites Australis
Common Reed

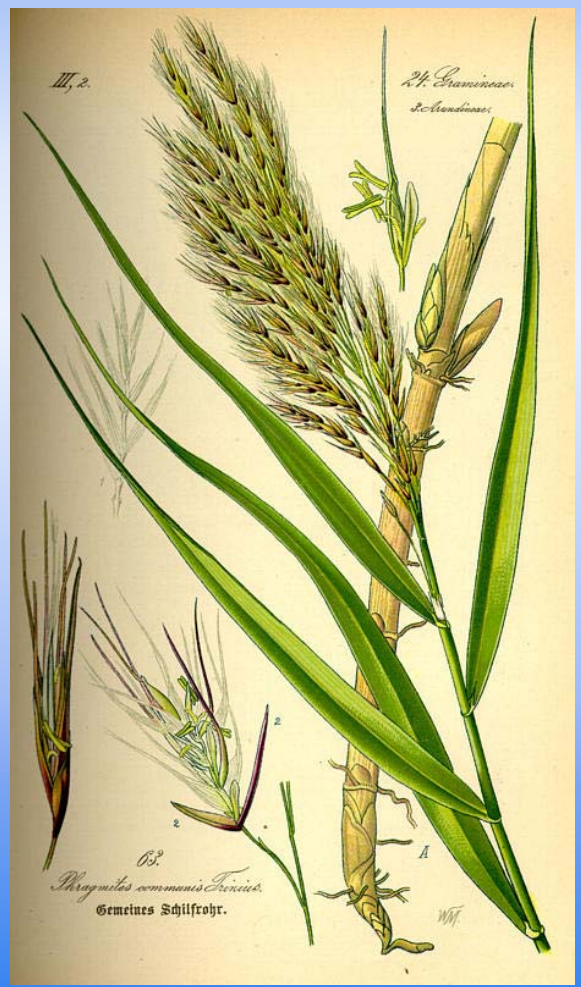


Phragmites

Phragmites australis

(Non-native Genotype)

- Perennial Grass
  - Creeping rhizomes
  - Stolon
- Stems
  - Hollow
  - 12 ft tall
- Leaves
  - Lanceolate
  - 8-16 inches long



Distinguishing Characteristics	Native Genotype	Non-Native Genotype
Observed stand Density	Less dense	*More Dense*
Stem thickness	Thin, Approximately the size of a pencil. Stems appear "crooked" from blowing over in the wind.	*Thicker, Approximately the size of a finger.*
Stem	Smooth and shiny, appearing polished. Green in the summer, changing to brown or gray in the winter	*Rough and Ribbed, dull Tan coloration*
Ligule Color	Reddish-Purple in Spring. Fading to chesnut brown	*Green to yellow-green*
Flower	Less dense, possibly appearing earlier in the season. Senescing earlier.	*More dense, "clusters" larger. Thought to senesce later (variable due to environmental factors)*

Phragmites

- **Habitat:**
  - **Wetlands**
- **Impacts:**
  - **Aggressive competitor**
  - **Crowds out native species**
  - **Increases fire frequency & intensity**

Aquatic Species on the Prohibited Plants list

Not listed on the State Noxious Weed List

Hairy willow herb (*Epilobium hirsutum*)

- Perennial
- Flowers
  - pink-crimson
- Leaves
  - Oblong lanceolate, toothed
  - Simple and glandular hairs

Marsh dewflower (*Murdannia keisak*)

- **Annual**
- **Flowers**
  - **Have 3 pink to lavender petals**
- **Leaves**
  - **alternate, lance-shaped,**
  - **have parallel veins**
  - **Bases form a sheath wrapping around the stem**

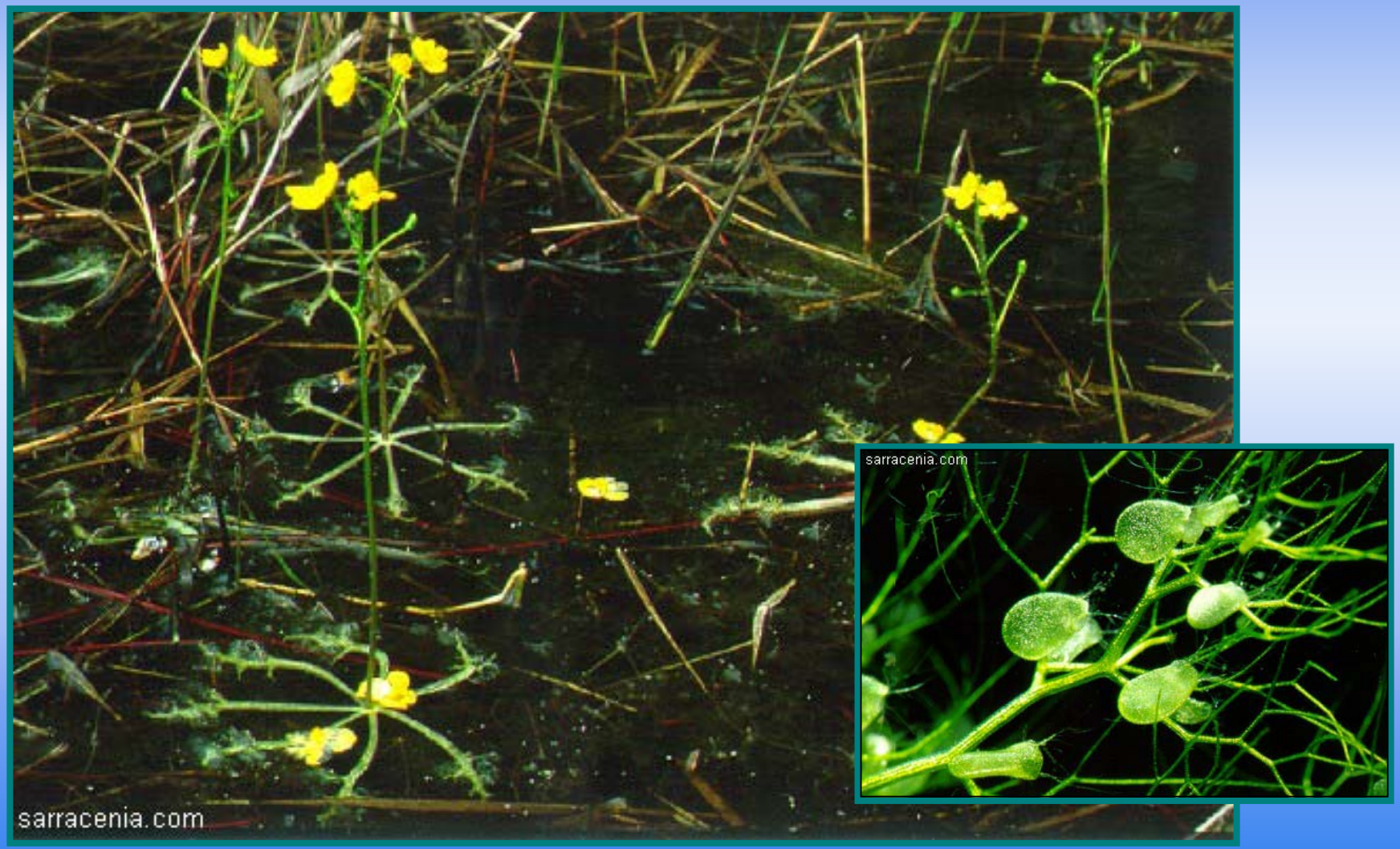
Grass-leaved arrowhead (*Sagittaria graminea*)

- **Perennial**
- **Flower**
  - **White or sometimes pink**
  - **2 to 12 groups of 3-flowered whorls at the end of the stem**
- **Leaves**
  - **both emergent and underwater leaves**
  - **emergent leaves are linear to ovate**
    - **tapering abruptly to a point**

Slender-leaved naiad (*Najas minor*)

- **Annual**
- **Flowers**
  - **very small and produced singly in the leaf axis**
- **Leaves**
  - **opposite, strap-shaped, about one inch in length**
  - **prominent marginal teeth.**

Swollen bladderwort
(Utricularia inflata)



Swollen bladderwort (*Utricularia inflata*)

- **Submersed free-floating plant**
  - **small bladders attached to stems that branch in a leaf-like fashion.**
- **Flowers**
  - **Yellow carried on tall stalks on a whorl of inflated branches**
- ***Carnivorous**
  - **the bladders trap and digest tiny animals**

Lagarosiphon
(*Lagarosiphon Major*)

- **Herbaceous perennial strictly aquatic,**
  - **freshwaters, entirely submersed, spreading at surface reproduces from vegetative fragments**
- **Leaves**
  - **Spirals along stem**
  - **Curved backwards**

Flowering rush (*Butomus umbelatus*)

- **Emergent monocot**
- **Flower**
  - **Pink flowers**
  - **3 pink sepals, 3 pink petals**
  - **Umble**
- **Leaves**
  - **Tall, narrow, upright**
  - **Triangular in cross-section**

Water chestnut (*Trapa natans*)

- **Annual**
- **Flower**
  - **spike, raceme, panicle or solitary**
- **Leaves**
  - **basal, alternate, opposite, or whorled, generally simple and toothed.**

European frog-bit (*Hydrocharis morsus-ranae*)

- **Aquatic herb (free-floating)**
- **Flowers**
  - **Single, white**
  - **Three petals**
- **Leaves**
  - **Heart-shaped,**
  - **Smooth, leathery**
  - **Lower surface purplish-red**

Monitor Species

- Reason to believe the species is a threat
- More information is needed for these species before inclusion on the list
- Information needed is usually on distribution, abundance or biology

Rorippa nasturtium-aquaticum
water cress

Eichhornia crassipes
water hyacinth

Typha angustifolia

narrow-leaf cattail

Potamogeton crispus
curly leaf pondweed

Additional Information

Ecology's Water Quality Program website:
http://www.ecy.wa.gov/programs/wq/links/plants.html

Washington State Noxious Weed Board website:
http://www.nwcb.wa.gov

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For a copy of '*An Aquatic Plant Identification Manual for Washington's Freshwater Plants*''

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Questions?